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ABSTRACT

This study was conducted to determine how well the Degrees of Reading Power (DRP) correctly identifies children who are experiencing reading difficulties and to describe more precisely the characteristics of children who have been identified as poor readers so that program planners can design more effective remedial instruction. The DRP and several criterion measures (the Virginia Literacy Testing Program Writing Battery, the Burke Reading Interview, the Estes Attitude Scales, and the Study Habits Inventory) were administered to 54 students attending sixth grade at two different middle schools in rural central Virginia. One-half of the students were identified as poor readers and one-half were classified as above average readers. The Informal Reading Inventory (IRI) was also administered to the 27 students identified as poor readers. The coorelation between DRP scores and Informal Reading Inventory instructional levels proved to be modest but significant. The data collected to show that poor readers exhibit similar strategies for dealing with printed material is still being interpreted. All correlations of DRP scores with tests of writing ability are of moderate to high magnitude; all are statistically significant. Results indicated children who achieve higher DRP scores exhibit more positive attitudes toward the subjects they study, especially toward reading. Results support the construct validity of the DRP as a measure of reading proficiency. (Three tables of data are included and 10 references are attached. One appendix includes the Burke Reading Interview responses.) (MG)

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CONSTRUCT VALIDITY OF THE DEGREES OF READING POWER TEST

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Preliminary Summary

Beginning in the spring of 1990, all sixth graders in Virginia will be administered "Literacy Passport Tests" in reading, writing, and mathematics. Students must achieve passing scores on all three tests by the time they finish eighth grade in order to be promoted to the ninth. For the reading component of the Literacy Testing Program, the state has chosen to use the Degrees of Reading Power (DRP), currently published by Touchstone Applied Science Associates (TASA). The DRP was chosen as the best available group-administered holistic assessment of reading. It is presumed to be valid for identifying students who cannot read well enough to succeed in middle and high school.

Problem

The immediate problem in the passport plan lies in the construct validity of the DRP. Though this test yields scores that can be translated into "independent," "instructional," and "frustration" levels, there is little evidence from previous research that these labels are equivalent to the designations that would be assigned by trained testers using the Informal Reading Inventory (Betts, 1946)--the method that is traditionally used to determine such levels. Worse still, what is known about

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DRP scores is that they tend to underestimate the ability of lower-achieving readers (Carver, 1985).

Furthermore, we believe that poor readers exhibit qualitatively different strategies for dealing with printed material than good readers--patterns that cannot be easily indexed on a unitary quantitative continuum. The DRP, despite the claim of its authors to be criterion referenced, indexes reading ability on such a continuum. For this reason, the DRP may not capture the true complexity of the reading act and may lack diagnostic value except as a screening device.

It is our intention to determine how well, if at all, the DRP correctly identifies children who are experiencing reading difficulties. In addition, we want to describe more precisely the characteristics of children who have been identified as poor readers so that program planners can design more effective remedial instruction.

Method

To help achieve the objectives of the study, the DRP and several criterion measures--the Virginia Literacy Testing Program Writing Battery, the Burke Reading Interview, the Estes Attitude Scales (Estes, Estes, Richards, & Roettger, 1981) and the Study Habits Inventory (Estes & Richards, 1984)--were administered to 54 students attending sixth grade at two different middle schools in rural central Virginia. Half these youngsters had been

identified by their teachers as poor readers; the remaining half were enrolled in an enrichment class for talented students or were classified as above average readers. Trained reading teachers also administered the Informal Reading Inventory (IRI) to the 27 students who had been identified as poor readers. We entertained and tested five working hypotheses:

First, if the DRP is a valid index, instructional level scores yielded by the DRP should correspond closely to designations made independently on the basis of the Informal Reading Inventory.

Second, children classified as poor readers on the basis of the DRP will exhibit similar strategies for dealing with printed material--patterns that are qualitatively distinct from those exhibited by unimpaired readers.

Third, children identified as poor readers on the basis of DRP performance will score lower on tests of writing ability (they will exhibit poorer writing style, mechanics, etc.) than good readers.

Fourth, because they experience difficulty making sense out of printed material, children identified as poor readers should be less "inquisitive" about what they study than better readers.

Finally, children identified as poor readers will exhibit poorer attitudes toward reading (and, perhaps, other subjects as well) than good readers.

Results

Data bearing on the first working hypothesis of the study are shown in Tables 1 and 2. The correlation between DRP scores and IRI instructional levels was obtained first (see Table 1). This relationship proved to be modest, but significant ($r = .45$; $p < .01$). Children were then categorized according to what instructional decisions would have been made on the basis of DRP scores or on the basis of IRI levels. The extent to which identical selection decisions would have been made using the respective instruments is illustrated as a co-occurrence matrix in Table 2. As can be seen, the decision to intervene or not intervene would have been identical in only 19 of the 27 cases. One probable reason for so many mismatches is the initial homogeneity of the sample. Only those already identified by teachers as poor readers were administered the IRI.

To address the second working hypothesis, all 54 subjects were ranked on the basis of DRP score. Burke Interview responses for those with extreme scores were selected for examination. For each of the 10 interview questions, qualitative data generated by the eight lowest (poor readers) and the nine highest (good readers) scoring subjects are shown in Appendix A. We are currently interpreting these data, and plan to publish our conclusions soon.

Data bearing on the third and fourth hypotheses are presented in Table 1. All the correlations of DRP scores with tests of writing ability are of moderate to high magnitude (ranging from .39 to .71); all are statistically significant. As predicted, DRP performance proved to be significantly correlated with inquisitiveness (one of the study habit indices)--though only at a low level ($r = .28$). Taken together, the figures reported in Table 1 offer substantial support for the construct validity of the DRP.

To test the fifth working hypothesis, the subjects were classified into five groups on the basis of DRP score. Group means were then compared on each of the Estes Attitude Scales (mathematics, reading, science, and general). As can be seen in Table 3, there are substantial mean differences favoring better readers (all linear trends were significant). As predicted, children who achieve higher DRP scores exhibit more positive attitudes toward the subjects they study--especially toward reading. These results also support the construct validity of the DRP as a measure of reading proficiency.

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Table 1

Means, Standard Deviations and Correlations of Validating Variables with DRP Scores

Variable	N	Mean	SD	Correlation
Instructional Level (IRI)	27	4.04	1.26	.45**
Writing Scores				
Composition	54	17.89	4.77	.39*
Style	54	12.37	2.78	.51**
Sentences	54	6.74	1.33	.59**
Usage	54	6.61	1.50	.71**
Mechanics	54	6.70	1.24	.64**
Total	54	50.31	9.39	.63**
Study Habits				
Compulsiveness	49	5.59	2.38	-.01
Inquisitiveness	49	6.67	2.25	.28*
Distractibility	49	5.98	2.54	-.20

Note. Range of instructional levels on the Informal Reading Inventory (IRI) was severely limited. Levels were only obtained on students identified as poor readers.

*$p < .05$.

**$p < .01$.

Table 2

Number of Children Chosen (or not Chosen) for Mandated Remedial Reading Assistance as a Function of Two Selection Methods

	Decision Based on the Informal Reading Inventory		Total
	Selected	Not Selected	
Decision Based on the DRP:			
Selected	12	4	16
Not Selected	4	7	11
Total	16	11	27

Note--Chi-Square = 4.03; $p < .05$

Table 3

Means and Standard Deviations of Attitude Scores

As a Function of DRP Category

Variable	DRP Category					
	Very Low (n = 9)	Low (n = 15)	Average (n = 12)	High (n = 10)	Very High (n = 8)	Total (n = 54)
DRP Score**	43.33 (3.74)	51.60 (2.59)	64.58 (6.17)	81.00 (2.11)	90.13 (4.70)	64.26 (17.00)
Attitude Scales						
Math*	16.11 (4.59)	16.47 (6.29)	18.92 (6.23)	20.10 (6.51)	21.00 (4.99)	18.30 (5.98)
Reading**	15.22 (7.98)	18.33 (5.59)	19.33 (9.12)	21.00 (6.02)	25.75 (1.75)	19.63 (7.18)
Science*	16.67 (6.95)	19.00 (3.78)	21.25 (6.84)	19.70 (6.41)	24.00 (3.85)	19.98 (5.89)
Total**	48.00 (17.82)	53.80 (11.99)	59.50 (20.03)	60.80 (14.61)	70.75 (8.96)	57.91 (16.26)

Note. Standard deviations in parentheses.

*Linear trend significant at .05 level.

**Linear trend significant at .01 level.

Appendix A

Burke Reading Interview Responses as a Function of Question and High or Low DRP Performance

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1. When you are reading and you come to something you don't know, what do you do?

Poor readers answered:

nothing

tell the teacher

ask who ever is around for help

keep going

ask my mom

skip it

sound it out

try to pronounce it

get tired

ask somebody

Good readers answered:

read it over to see if I understand it. After the second time,ask for help

look for context clues

read over it a few times

ask for help

read it over a few times. If I still don't understand, I just skip it.

try to figure it out

if it's a person's name, make up a new one

look it up in a dictionary, look it up

think about it

read on to see if it is explained

Appendix A (Continued)

2. Do you think that your teacher is a good reader?

Poor readers answered:

I don't know

Yes

No

Yes!

Good readers answered:

Yes

3. What makes her/him a good reader?

Poor readers answered:

I don't know

They are older

She reads a lot, reading every day

Because they went through school and studied and learned

Read all the time

By knowing how to read

Because she's smart

Good readers answered:

She understands books (like words in them)

She can read quickly (to herself of course). When she reads aloud she enunciates her words and asks if there are any questions.

She understands a lot of weird words and can explain them to us so we can!

Fast, knows the words

She reads clearly so you can understand her, and she understands what she read

She explains if we don't understand, reads clearly

She pronounces the words well, reads at the right speed, puts expression in and feeling

She speaks clearly, changes voice to fit character, eye contact, makes it interesting.

4. Do you think that she/he ever comes to something she/he doesn't know when reading?

Poor readers answered:

I don't know

Sometimes

No

Yes

Not really

Good readers answered:

No

Yes

Yes, everyone does

5. When she/he comes to something she/he doesn't know, what do you think she/he does about it?

Poor readers answered:

I don't know

Ask a person who does know

Look it up

Skip it

Sound it out, try to pronounce it

Keep on reading to see if it explains itself

She tries to learn it

Try something else

Nothing

Good readers answered:

Talks to someone about it to see if she can get any information from anyone else

Looks it up in a book

Asks people

Tries to figure it out using context clues

Look it up in the dictionary

6. If you knew that someone was having difficulty reading how would you help them?

Poor readers answered:

I wouldn't

Make them read easy books

If they ask me a question I'll answer it for them

Find out what the word is

I would try to explain to them what it's about

Tell them to sound it out

Try to help them pronounce it

Help with the word

Good readers answered:

I would go over it with them and explain the part which was giving them trouble

Ask them if they wanted help

Read with them, help them with things they didn't understand

Try to explain it on their level

Tell them the words they were having a hard time with

Tell them to pronounce the letters in words they don't know

Make sure they understand what they're reading

Think of meanings of words to help understand

Sit and help them read

Read it to them

7. What would a teacher do to help that person?

Poor readers answered:

I don't know.

Make them study.

Tell them to look up the word.

Explain to them and go over it until they do.

Tell them what it is.

Let them probably skip it.

Help them read over with them.

Good readers answered:

(Note: Most good readers responded that a teacher would do the same thing that they would do. They usually said something like "same thing." Where that occurred, answers from question six are repeated here.)

Go over it with them and explain the part which was giving them trouble.

Ask them if they wanted help.

Read with them, help them with things they didn't understand

Try to explain it on their level

Tell them the words they were having a hard time with

Tell them to pronounce the letters in words they don't know.

Make sure they understand what they're reading.

Think of meanings of words to help understand.

Sit and help them read.

Read it to them.

Go over what they have read and explain in easier words what happens and what words mean.

Explain it or read it to them.

8. How did you learn to read? What did (they/you) do to help you learn?

Poor readers answered:

I don't know.

By teachers

My parents. They read to me and then I would read to them.

My mom. Kept rereading book.

I went to school. Made us read books.

My parents taught me to say the word.

By the word.

Teach me.

Good readers answered:

By learning the sight and sounds of letters, and them putting the sounds together. Taught me to recognize letters and how they sound.

My mom, preschool and kindergarten teachers taught me my letters, their sounds, how to put letters together, and they taught me that reading is fun.

School and parents. My mom and grandma would get me to read to them every night.

My parents read to me and then had me read to them.

My mom taught me sounds and ABC's.

I liked to look at pictures in books and one day I started reading the words.

Sounding words out. Take apart the word and sound each letter out and then put it together.

I started to spell short words then more finally I learned sentences. My parents read to me and so did my teachers. They also encouraged me.

School and home--gave me easy books to start off and told me to sound it out.

9. What would you like to do better as a reader?

Poor readers answered:

No.

Learn math words.

Yes

Learn more words

Read books.

Write.

The words.

Nothing.

Good readers answered:

I think I am at a very advanced stage. But if their is an even higher plane of reading I would like to be on it.

Be able to read faster.

To focus more on what I'm reading. If I'm reading what I want, I'm interested in it, but if it's school stuff, I expect it to be boring.

Faster, improve speed.

Understand words more.

know more words.

10. Do you think that you are a good reader? Why?

Poor readers answered:

No. I don't care.

Yes. I take my time.

Yes. Because I had a good teacher. My parents.

Yes. Because I know.

Yes and No. Because I know a lot of words, but I don't know all.

Yes. My mom said I do.

No. Because people don't always help you and because people stare at you and it's not what I like to do.

Yes. Because I do.

No. I don't know.

Good readers answered:

Yes.

Yes. Because I understand most things in books. I can usually figure things out if I don't understand them.

Yes. I read a lot and I've had a lot of practice.

Yes. I concentrate, know most of the words.

Pretty good. I understand a lot more words than I used to. Try to figure out what words mean.

Yes. Because I understand most of what I read.

Yes. I enjoy reading and I read a lot at a good speed for me at the right level of books.

In between. Because I can read well, just not very fast. Sometimes I'll fumble over my words, but I guess everyone does.